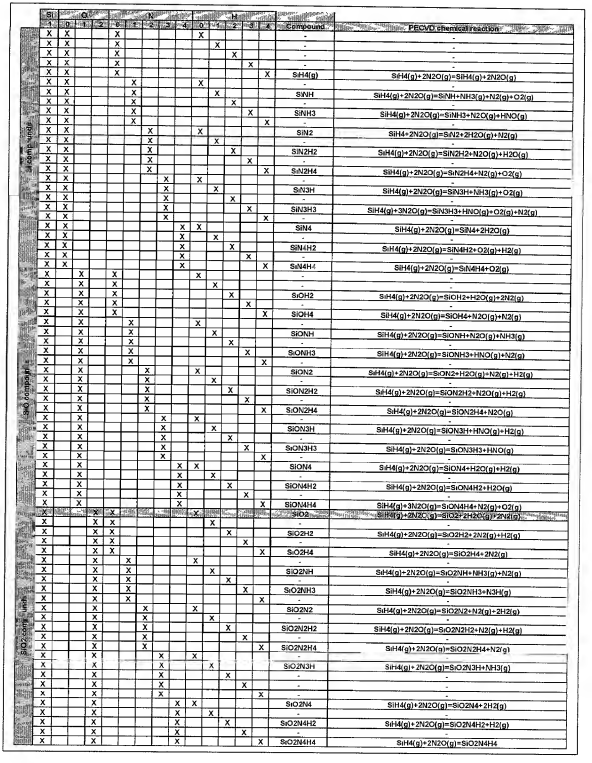
Si
O
N
H
Compound
PECVD chemical reaction
SiH4(g)
SiH4(g)+2N2O(g)=SiH4(g)+2N2O(g)
SiNH
SiH4(g)+2N2O(g)=SiNH+NH3(g)+N2(g)+O2(g)
SiNH3
SiH4(g)+2N2O(g)=SiNH3+N2O(g)+HNO(g)
SiN2
SiH4+2N2O(g)=SiN2+2H2O(g)+N2(g)
SiN2H2
SiH4(g)+2N2O(g)=SiN2H2+N2O(g)+H2O(g)
SiN2H4
SiH4(g)+2N2O(g)=SiN2H4+N2(g)+O2(g)
SiN3H
SiH4(g)+2N2O(g)=SiN3H+NH3(g)+O2(g)
SiN3H3
SiH4(g)+3N2O(g)=SiN3H3+HNO(g)+O2(g)+N2(g)
SiN4
SiH4(g)+2N2O(g)=SiN4+2H2O(g)
SiN4H2
SiH4(g)+2N2O(g)=SiN4H2+O2(g)+H2(g)
SiN4H4
SiH4(g)+2N2O(g)=SiN4H4+O2(g)
SiOH2
SiH4(g)+2N2O(g)=SiOH2+H2O(g)+2N2(g)
SiOH4
SiH4(g)+2N2O(g)=SiOH4+N2O(g)+N2(g)
SiONH
SiH4(g)+2N2O(g)=SiONH+N2O(g)+NH3(g)
SiONH3
SiH4(g)+2N2O(g)=SiONH3+HNO(g)+N2(g)
SiON2
SiH4(g)+2N2O(g)=SiON2+H2O(g)+N2(g)+H2(g)
SiON2H2
SiH4(g)+2N2O(g)=SiON2H2+N2O(g)+H2(g)
SiON2H4
SiH4(g)+2N2O(g)=SiON2H4+N2O(g)
SiON3H
SiH4(g)+2N2O(g)=SiON3H+HNO(g)+H2(g)
SiON3H3
SiH4(g)+2N2O(g)=SiON3H3+HNO(g)
SiON4
SiH4(g)+2N2O(g)=SiON4+H2O(g)+H2(g)
SiON4H2
SiH4(g)+2N2O(g)=SiON4H2+H2O(g)
SiON4H4
SiH4(g)+3N2O(g)=SiON4H4+N2(g)+O2(g)
SiO2
SiH4(g)+2N2O(g)=SiO2+2H2O(g)+2N2(g)
SiO2H2
SiH4(g)+2N2O(g)=SiO2H2+2N2(g)+H2(g)
SiO2H4
SiH4(g)+2N2O(g)=SiO2H4+2N2(g)
SiO2NH
SiH4(g)+2N2O(g)=SiO2NH+NH3(g)+N2(g)
SiO2NH3
SiH4(g)+2N2O(g)=SiO2NH3+N3H(g)
SiO2N2
SiH4(g)+2N2O(g)=SiO2N2+N2(g)+2H2(g)
SiO2N2H2
SiH4(g)+2N2O(g)=SiO2N2H2+N2(g)+H2(g)
SiO2N2H4
SiH4(g)+2N2O(g)=SiO2N2H4+N2(g)
SiO2N3H
SiH4(g)+2N2O(g)=SiO2N3H+NH3(g)
SiO2N4
SiH4(g)+2N2O(g)=SiO2N4+2H2(g)
SiO2N4H2
SiH4(g)+2N2O(g)=SiO2N4H2+H2(g)
SiO2N4H4
SiH4(g)+2N2O(g)=SiO2N4H4

Figure 1

	Compound	PECVD chemical reaction
Si Compounds	SiH4(g)	SiH4(g)+2N2O(g)=SiH4(g)+2N2O(g)
	SiNH	SiH4(g)+2N2O(g)=SiNH+NH3(g)+N2(g)+O2(g)
	SiNH3	SiH4(g)+2N2O(g)=SiNH3+N2O(g)+HNO(g)
	SiN2	SiH4+2N2O(g)=SiN2+2H2O(g)+N2(g)
	SiN2H2	SiH4(g)+2N2O(g)=SiN2H2+N2O(g)+H2O(g)
	SiN2H4	SiH4(g)+2N2O(g)=SiN2H4+N2(g)+O2(g)
	SiN3H	SiH4(g)+2N2O(g)=SiN3H+NH3(g)+O2(g)
	SiN3H3	SiH4(g)+3N2O(g)=SiN3H3+HNO(g)+O2(g)+N2(g)
	SiN4	SiH4(g)+2N2O(g)=SiN4+2H2O(g)
	SiN4H2	SiH4(g)+2N2O(g)=SiN4H2+O2(g)+H2(g)
	SiN4H4	SiH4(g)+2N2O(g)=SiN4H4+O2(g)
SiO compounds	SiOH2	SiH4(g)+2N2O(g)=SiOH2+H2O(g)+2N2(g)
	SiOH4	SiH4(g)+2N2O(g)=SiOH4+N2O(g)+N2(g)
	SiONH	SiH4(g)+2N2O(g)=SiONH+N2O(g)+NH3(g)
	SiONH3	SiH4(g)+2N2O(g)=SiONH3+HNO(g)+N2(g)
	SiON2	SiH4(g)+2N2O(g)=SiON2+H2O(g)+N2(g)+H2(g)
	SiON2H2	SiH4(g)+2N2O(g)=SiON2H2+N2O(g)+H2(g)
	SiON2H4	SiH4(g)+2N2O(g)=SiON2H4+N2O(g)
	SiON3H	SiH4(g)+2N2O(g)=SiON3H+HNO(g)+H2(g)
	SiON3H3	SiH4(g)+2N2O(g)=SiON3H3+HNO(g)
	SiON4	SiH4(g)+2N2O(g)=SiON4+H2O(g)+H2(g)
	SiON4H2	SiH4(g)+2N2O(g)=SiON4H2+H2O(g)
	SiON4H4	SiH4(g)+3N2O(g)=SiON4H4+N2(g)+O2(g)
SiO2 compounds	SiO2	SiH4(g)+2N2O(g)=SiO2+2H2O(g)+2N2(g)
	SiO2H2	SiH4(g)+2N2O(g)=SiO2H2+2N2(g)+H2(g)
	SiO2H4	SiH4(g)+2N2O(g)=SiO2H4+2N2(g)
	SiO2NH	SiH4(g)+2N2O(g)=SiO2NH+NH3(g)+N2(g)
	SiO2NH3	SiH4(g)+2N2O(g)=SiO2NH3+N3H(g)
	SiO2N2	SiH4(g)+2N2O(g)=SiO2N2+N2(g)+2H2(g)
	SiO2N2H2	SiH4(g)+2N2O(g)=SiO2N2H2+N2(g)+H2(g)
	SiO2N2H4	SiH4(g)+2N2O(g)=SiO2N2H4+N2(g)
	SiO2N3H	SiH4(g)+2N2O(g)=SiO2N3H+NH3(g)
	SiO2N4	SiH4(g)+2N2O(g)=SiO2N4+2H2(g)
	SiO2N4H2	SiH4(g)+2N2O(g)=SiO2N4H2+H2(g)
	SiO2N4H4	SiH4(g)+2N2O(g)=SiO2N4H4

Figure 2

	Compound	High T° thermal treatment reaction	New compound
Si Compounds	SiH4(g)	SiH4+N2(g)=SiNH+NH3(g)	SiNH
	SiNH	SiNH+N2(g)=SiNH+N2(g)	SiNH
	SiNH3	SiNH3+N2(g)=SiNH+N2(g)+H2(g)	SiNH
	SiN2	SiN2+N2(g)=SiN2+N2(g)	SiN2
	SiN2H2	SiN2H2+N2(g)=SiN2+N2(g)+H2(g)	SiN2
	SiN2H4	SiN2H4+N2(g)=SiN2+N2(g)+2H2(g)	SiN2
	SiN3H	SiN3H+N2(g)=SiNH+2N2(g)	SiNH
	SiN3H3	SiN3H3+N2(g)=SiNH+2N2(g)+H2(g)	SiNH
	SiN4	SiN4+N2(g)=SiN2+2N2(g)	SiN2
	SiN4H2	SiN4H2+N2(g)=SiN2+2N2(g)+H2(g)	SiN2
	SiN4H4	SiN4H4+N2(g)=SiN2+2N2(g)+2H2(g)	SiN2
SiO compounds	SiOH2	SiOH2+N2(g)=SiOH2+N2(g)	SiOH2
	SiOH4	SiOH4+N2(g)=SiOH2+N2(g)+H2(g)	SiOH2
	SiONH	SiONH+N2(g)=SiONH+N2(g)	SiONH
	SiONH3	SiONH3+N2(g)=SiONH+N2(g)+H2(g)	SiONH
	SiON2	SiON2+N2(g)=SiON2+N2(g)	SiON2
	SiON2H2	SiON2H2+N2(g)=SiON2+N2(g)+H2(g)	SiON2
	SiON2H4	SiON2H4+N2(g)=SiON2+N2(g)+2H2(g)	SiON2
	SiON3H	SiON3H+N2(g)=SiONH+2N2(g)	SiONH
	SiON3H3	SiON3H3+N2(g)=SiONH+2N2(g)+H2(g)	SiONH
	SiON4	SiON4+N2(g)=SiON2+2N2(g)	SiON2
	SiON4H2	SiON4H2+N2(g)=SiON2+2N2(g)+H2(g)	SiON2
	SiON4H4	SiON4H4+N2(g)=SiON2+2N2(g)+2H2(g)	SiON2
SiO2 compounds	SiO2	SiO2+N2(g)=SiO2+N2(g)	SiO2
	SiO2H2	SiO2H2+N2(g)=SiO2+N2(g)+H2(g)	SiO2
	SiO2H4	SiO2H4+N2(g)=SiO2+N2(g)+2H2(g)	SiO2
	SiO2NH	SiO2NH+N2(g)=SiO2NH+N2(g)	SiO2
	SiO2NH3	SiO2NH3+N2(g)=SiO2+NH3(g)+N2(g)	SiO2
	SiO2N2	SiO2N2+N2(g)=SiO2+2N2(g)	SiO2
	SiO2N2H2	SiO2N2H2+N2(g)=SiO2+2N2(g)+H2(g)	SiO2
	SiO2N2H4	SiO2N2H4+N2(g)=SiO2+2N2(g)+2H2(g)	SiO2
	SiO2N3H	SiO2N3H+N2(g)=SiO2NH+2N2(g)	SiO2
	SiO2N4	SiO2N4+N2(g)=SiO2+3N2(g)	SiO2
	SiO2N4H2	SiO2N4H2+N2(g)=SiO2+3N2(g)+H2(g)	SiO2
	SiO2N4H4	SiO2N4H4+N2(g)=SiO2+3N2(g)+2H2(g)	SiO2

Figure 3

		HO-H	SiO-H	SiN-H	SiNH-H	Si-H	Si=O	N=N	Si-O-Si	Si-O-Si	Si-ON	Si-OH	Si-OSi	Si-O-Si
FTIR 1st mode (cm-1)	Min	3550	3470	3380	3300	2210	1800	1530	1080	1000	910	860	740	410
	Ave	3650	3510	3420	3380	2260	1875	1555	1180	1080	950	885	810	460
	Max	3750	3550	3460	3460	2310	1950	1580	1280	1160	990	910	880	510
1st mode (μm)	Min	2.817	2.882	2.959	3.030	4.525	5.556	6.536	9.259	10.000	10.989	11.628	13.514	24.390
	Ave	2.740	2.849	2.924	2.959	4.425	5.333	6.431	8.475	9.259	10.526	11.299	12.346	21.739
	Max	2.667	2.817	2.890	2.890	4.329	5.128	6.329	7.813	8.621	10.101	10.989	11.364	19.608
2nd mode (μm)	Min	1.408	1.441	1.479	1.515	2.262	2.778	3.268	4.630	5.000	5.495	5.814	6.757	12.195
	Ave	1.370	1.425	1.462	1.479	2.212	2.667	3.215	4.237	4.630	5.263	5.650	6.173	10.870
	Max	1.333	1.408	1.445	1.445	2.165	2.564	3.165	3.906	4.310	5.051	5.495	5.682	9.804
3rd mode (μm)	Min	0.939	0.961	0.986	1.010	1.508	1.852	2.179	3.086	3.333	3.663	3.876	4.505	8.130
	Ave	0.913	0.950	0.975	0.986	1.475	1.778	2.144	2.825	3.086	3.509	3.766	4.115	7.246
	Max	0.889	0.939	0.963	0.963	1.443	1.709	2.110	2.604	2.874	3.367	3.663	3.788	6.536
4th mode (μm)	Min	0.794	0.720	0.740	0.758	1.131	1.389	1.634	2.315	2.500	2.747	2.907	3.378	6.098
	Ave	0.685	0.712	0.731	0.740	1.106	1.333	1.608	2.119	2.315	2.632	2.825	3.086	5.485
	Max	0.667	0.704	0.723	0.723	1.082	1.282	1.582	1.953	2.155	2.525	2.747	2.841	4.902
5th mode (μm)	Min	0.563	0.576	0.592	0.606	0.905	1.111	1.307	1.852	2.000	2.198	2.326	2.703	4.878
	Ave	0.548	0.570	0.585	0.592	0.885	1.067	1.286	1.695	1.852	2.105	2.260	2.469	4.348
	Max	0.533	0.563	0.578	0.578	0.866	1.026	1.266	1.563	1.724	2.020	2.198	2.273	3.922
6th mode (μm)	Min	0.469	0.480	0.493	0.505	0.754	0.926	1.089	1.543	1.667	1.832	1.938	2.252	4.065
	Ave	0.457	0.475	0.487	0.493	0.737	0.889	1.072	1.412	1.543	1.754	1.883	2.058	3.623
	Max	0.444	0.469	0.482	0.482	0.722	0.855	1.055	1.302	1.437	1.684	1.832	1.894	3.268
7th mode (μm)	Min	0.402	0.412	0.423	0.433	0.646	0.794	0.934	1.323	1.429	1.570	1.661	1.931	3.484
	Ave	0.391	0.407	0.418	0.423	0.632	0.762	0.919	1.211	1.323	1.504	1.614	1.764	3.106
	Max	0.381	0.402	0.413	0.413	0.618	0.733	0.904	1.116	1.232	1.443	1.570	1.623	2.801
8th mode (μm)	Min	0.352	0.360	0.370	0.379	0.566	0.694	0.817	1.157	1.250	1.374	1.453	1.689	3.049
	Ave	0.342	0.356	0.365	0.370	0.553	0.667	0.804	1.059	1.157	1.316	1.412	1.543	2.717
	Max	0.333	0.352	0.361	0.361	0.541	0.641	0.791	0.977	1.078	1.263	1.374	1.420	2.451

Figure 4

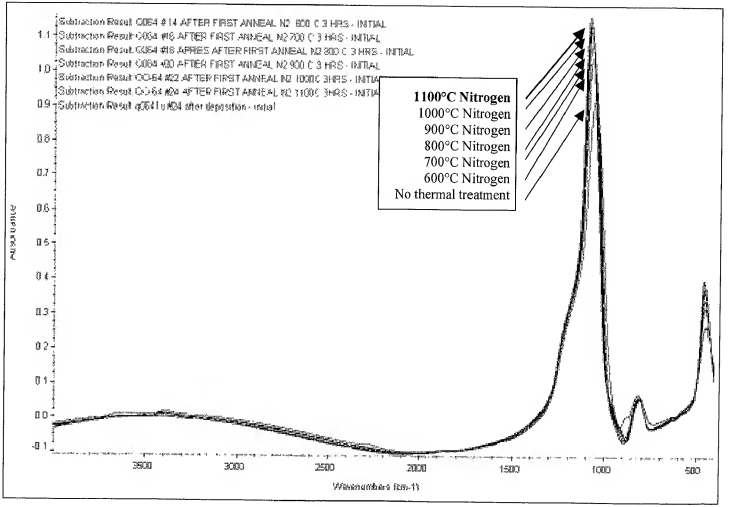
Subtraction Result C064 #14 AFTER FIRST ANNEAL N2 800 C 3 HRS - INITIAL
Subtraction Result C064 #16 AFTER FIRST ANNEAL N2 700 C 3 HRS - INITIAL
Subtraction Result C064 #18 APRIES AFTER FIRST ANNEAL N2 600 C 3 HRS - INITIAL
Subtraction Result C064 #20 AFTER FIRST ANNEAL N2 900 C 3 HRS - INITIAL
Subtraction Result CC-64 #22 AFTER FIRST ANNEAL N2 1000C 3HRS - INITIA
Subtraction Result CC-64 #24 AFTER FIRST ANNEAL N2 1100C 3HRS - INITIA
Subtraction Result q0641 u #24 after deposition - initial
1100°C Nitrogen
1000°C Nitrogen
900°C Nitrogen
800°C Nitrogen
700°C Nitrogen
600°C Nitrogen
No thermal treatment
Absorbance
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
3500
3000
2500
2000
1500
1000
500
Wavenumbers (cm-1)

Figure 5a

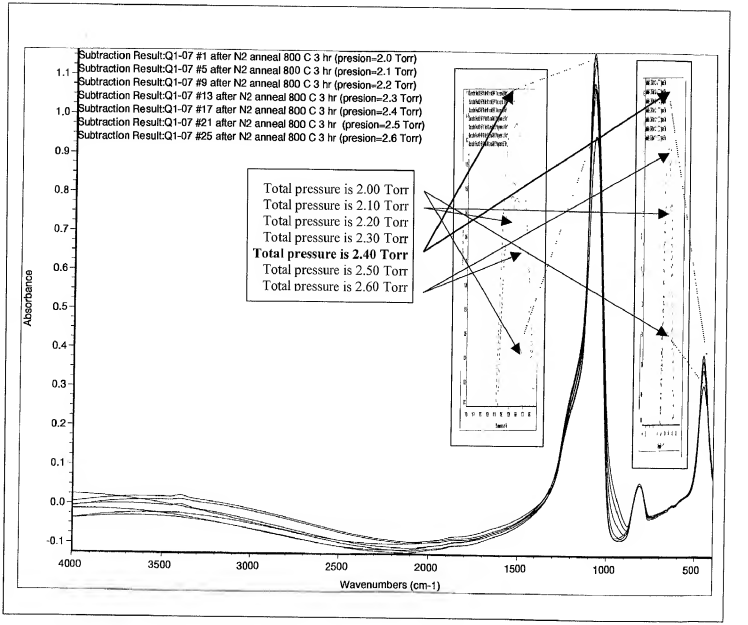
Subtraction Result:Q1-07 #1 after N2 anneal 800 C 3 hr (presion=2.0 Torr)
Subtraction Result:Q1-07 #5 after N2 anneal 800 C 3 hr (presion=2.1 Torr)
Subtraction Result:Q1-07 #9 after N2 anneal 800 C 3 hr (presion=2.2 Torr)
Subtraction Result:Q1-07 #13 after N2 anneal 800 C 3 hr (presion=2.3 Torr)
Subtraction Result:Q1-07 #17 after N2 anneal 800 C 3 hr (presion=2.4 Torr)
Subtraction Result:Q1-07 #21 after N2 anneal 800 C 3 hr (presion=2.5 Torr)
Subtraction Result:Q1-07 #25 after N2 anneal 800 C 3 hr (presion=2.6 Torr)
Total pressure is 2.00 Torr
Total pressure is 2.10 Torr
Total pressure is 2.20 Torr
Total pressure is 2.30 Torr
Total pressure is 2.40 Torr
Total pressure is 2.50 Torr
Total pressure is 2.60 Torr
Absorbance
Wavenumbers (cm-1)

Figure 5b

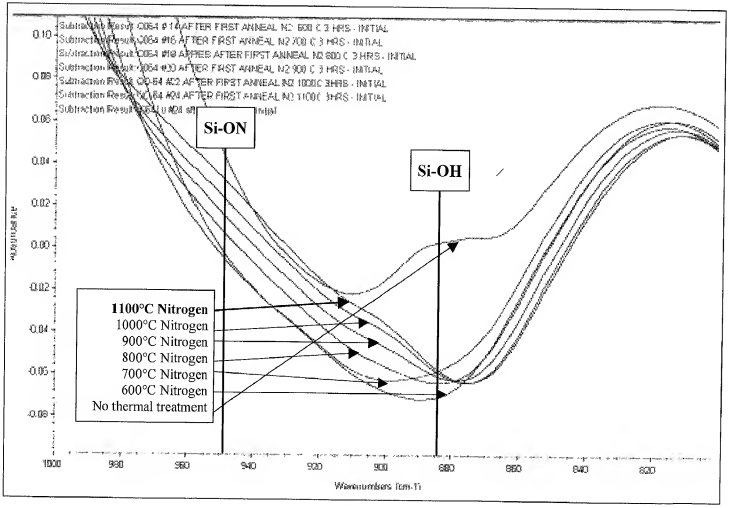
Si-ON
Si-OH
1100°C Nitrogen
1000°C Nitrogen
900°C Nitrogen
800°C Nitrogen
700°C Nitrogen
600°C Nitrogen
No thermal treatment
Wavenumbers (cm-1)

Figure 6a

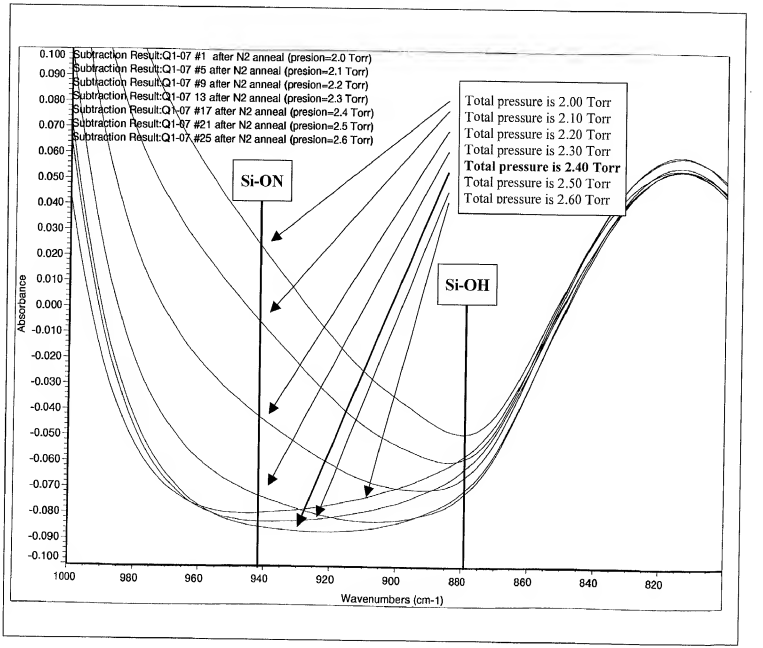
Subtraction Result:Q1-07 #1 after N2 anneal (presion=2.0 Torr)
Subtraction Result:Q1-07 #5 after N2 anneal (presion=2.1 Torr)
Subtraction Result:Q1-07 #9 after N2 anneal (presion=2.2 Torr)
Subtraction Result:Q1-07 13 after N2 anneal (presion=2.3 Torr)
Subtraction Result:Q1-07 #17 after N2 anneal (presion=2.4 Torr)
Subtraction Result:Q1-07 #21 after N2 anneal (presion=2.5 Torr)
Subtraction Result:Q1-07 #25 after N2 anneal (presion=2.6 Torr)
Total pressure is 2.00 Torr
Total pressure is 2.10 Torr
Total pressure is 2.20 Torr
Total pressure is 2.30 Torr
Total pressure is 2.40 Torr
Total pressure is 2.50 Torr
Total pressure is 2.60 Torr
Si-ON
Si-OH
Absorbance
Wavenumbers (cm-1)
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
-0.010
-0.020
-0.030
-0.040
-0.050
-0.060
-0.070
-0.080
-0.090
-0.100
1000
980
960
940
920
900
880
860
840
820

Figure 6b

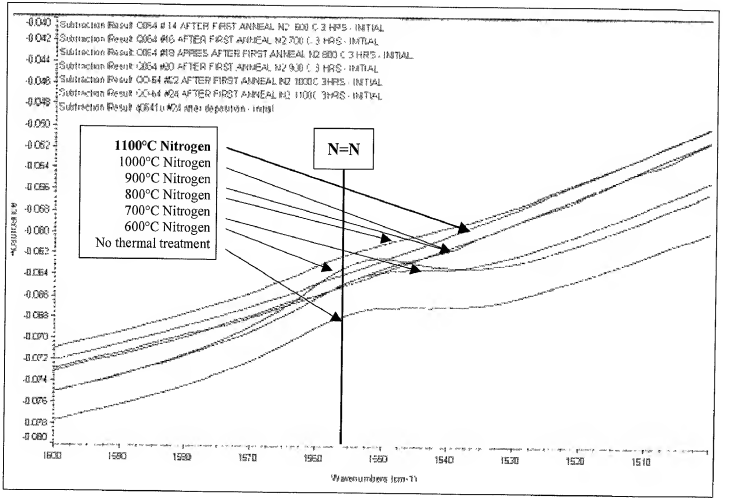
Subtraction Result C054 #14 AFTER FIRST ANNEAL N2 800 C 3 HRS - INITIAL
Subtraction Result C054 #16 AFTER FIRST ANNEAL N2 700 C 3 HRS - INITIAL
Subtraction Result C054 #18 APRES AFTER FIRST ANNEAL N2 600 C 3 HRS - INITIAL
Subtraction Result C054 #20 AFTER FIRST ANNEAL N2 900 C 3 HRS - INITIAL
Subtraction Result C054 #22 AFTER FIRST ANNEAL N2 1000C 3HRS - INITIAL
Subtraction Result C054 #24 AFTER FIRST ANNEAL N2 1100C 3HRS - INITIAL
Subtraction Result C041u #04 after deposition - initial
1100°C Nitrogen
1000°C Nitrogen
900°C Nitrogen
800°C Nitrogen
700°C Nitrogen
600°C Nitrogen
No thermal treatment
N=N
Absorbance
Wavenumbers (cm-1)

Figure 7a

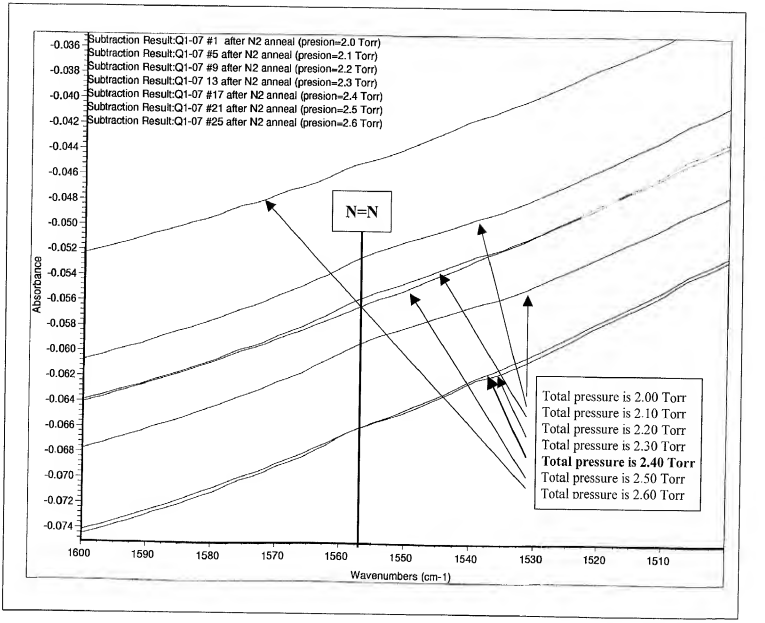
Subtraction Result:Q1-07 #1 after N2 anneal (presion=2.0 Torr)
Subtraction Result:Q1-07 #5 after N2 anneal (presion=2.1 Torr)
Subtraction Result:Q1-07 #9 after N2 anneal (presion=2.2 Torr)
Subtraction Result:Q1-07 13 after N2 anneal (presion=2.3 Torr)
Subtraction Result:Q1-07 #17 after N2 anneal (presion=2.4 Torr)
Subtraction Result:Q1-07 #21 after N2 anneal (presion=2.5 Torr)
Subtraction Result:Q1-07 #25 after N2 anneal (presion=2.6 Torr)
N=N
Total pressure is 2.00 Torr
Total pressure is 2.10 Torr
Total pressure is 2.20 Torr
Total pressure is 2.30 Torr
Total pressure is 2.40 Torr
Total pressure is 2.50 Torr
Total pressure is 2.60 Torr
Absorbance
Wavenumbers (cm-1)
-0.036
-0.038
-0.040
-0.042
-0.044
-0.046
-0.048
-0.050
-0.052
-0.054
-0.056
-0.058
-0.060
-0.062
-0.064
-0.066
-0.068
-0.070
-0.072
-0.074
1600
1590
1580
1570
1560
1550
1540
1530
1520
1510

Figure 7b

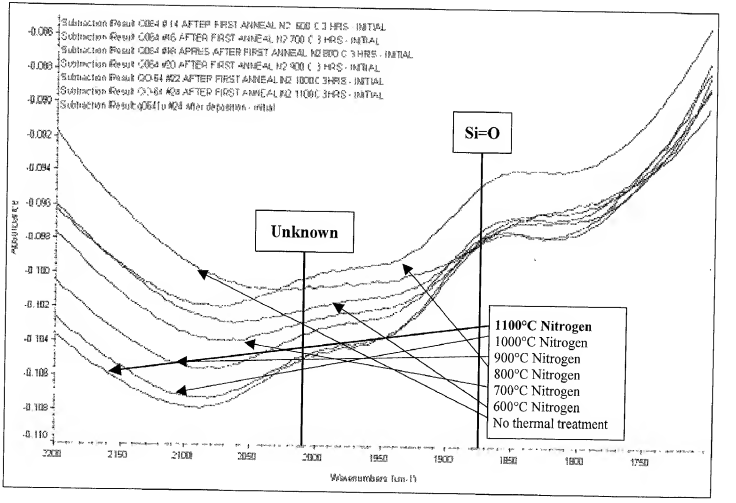
Subtraction Result C064 #14 AFTER FIRST ANNEAL N2 600 C 3 HRS - INITIAL
Subtraction Result C064 #16 AFTER FIRST ANNEAL N2 700 C 3 HRS - INITIAL
Subtraction Result C064 #18 APRES AFTER FIRST ANNEAL N2 800 C 3 HRS - INITIAL
Subtraction Result C064 #20 AFTER FIRST ANNEAL N2 900 C 3 HRS - INITIAL
Subtraction Result GO-64 #22 AFTER FIRST ANNEAL IN2 1000C 3HRS - INITIAL
Subtraction Result C064 #24 AFTER FIRST ANNEAL IN2 1100C 3HRS - INITIAL
Subtraction Result g064fp #24 after deposition - initial
Si=O
Unknown
1100°C Nitrogen
1000°C Nitrogen
900°C Nitrogen
800°C Nitrogen
700°C Nitrogen
600°C Nitrogen
No thermal treatment
Absorbance
Wavenumbers (cm-1)
-0.086
-0.088
-0.090
-0.092
-0.094
-0.096
-0.098
-0.100
-0.102
-0.104
-0.106
-0.108
-0.110
2200
2150
2100
2050
2000
1950
1900
1850
1800
1750

Figure 8a

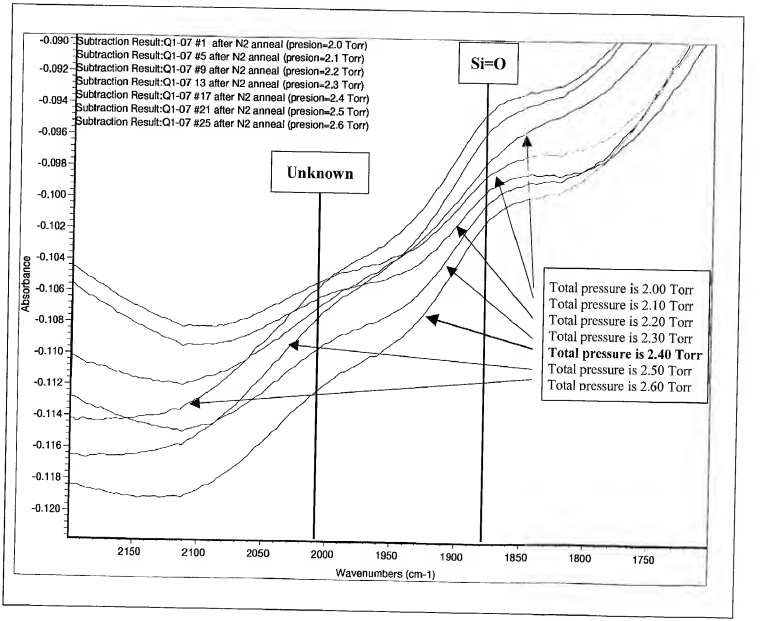
Subtraction Result:Q1-07 #1 after N2 anneal (presion=2.0 Torr)
Subtraction Result:Q1-07 #5 after N2 anneal (presion=2.1 Torr)
Subtraction Result:Q1-07 #9 after N2 anneal (presion=2.2 Torr)
Subtraction Result:Q1-07 13 after N2 anneal (presion=2.3 Torr)
Subtraction Result:Q1-07 #17 after N2 anneal (presion=2.4 Torr)
Subtraction Result:Q1-07 #21 after N2 anneal (presion=2.5 Torr)
Subtraction Result:Q1-07 #25 after N2 anneal (presion=2.6 Torr)
Si=O
Unknown
Total pressure is 2.00 Torr
Total pressure is 2.10 Torr
Total pressure is 2.20 Torr
Total pressure is 2.30 Torr
Total pressure is 2.40 Torr
Total pressure is 2.50 Torr
Total pressure is 2.60 Torr
Absorbance
-0.090
-0.092
-0.094
-0.096
-0.098
-0.100
-0.102
-0.104
-0.106
-0.108
-0.110
-0.112
-0.114
-0.116
-0.118
-0.120
2150
2100
2050
2000
1950
1900
1850
1800
1750
Wavenumbers (cm-1)

Figure 8b

Si-H
1100°C Nitrogen
1000°C Nitrogen
900°C Nitrogen
800°C Nitrogen
700°C Nitrogen
600°C Nitrogen
No thermal treatment
Wavenumbers (cm-1)
Absorbance

Figure 9a

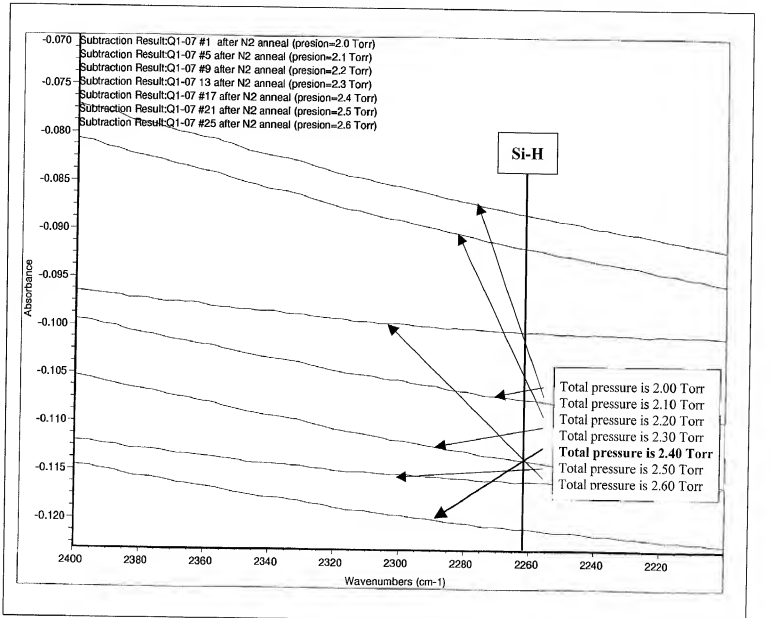
Subtraction Result:Q1-07 #1 after N2 anneal (presion=2.0 Torr)
Subtraction Result:Q1-07 #5 after N2 anneal (presion=2.1 Torr)
Subtraction Result:Q1-07 #9 after N2 anneal (presion=2.2 Torr)
Subtraction Result:Q1-07 13 after N2 anneal (presion=2.3 Torr)
Subtraction Result:Q1-07 #17 after N2 anneal (presion=2.4 Torr)
Subtraction Result:Q1-07 #21 after N2 anneal (presion=2.5 Torr)
Subtraction Result:Q1-07 #25 after N2 anneal (presion=2.6 Torr)
Si-H
Total pressure is 2.00 Torr
Total pressure is 2.10 Torr
Total pressure is 2.20 Torr
Total pressure is 2.30 Torr
Total pressure is 2.40 Torr
Total pressure is 2.50 Torr
Total pressure is 2.60 Torr
Absorbance
-0.070
-0.075
-0.080
-0.085
-0.090
-0.095
-0.100
-0.105
-0.110
-0.115
-0.120
2400
2380
2360
2340
2320
2300
2280
2260
2240
2220
Wavenumbers (cm-1)

Figure 9b

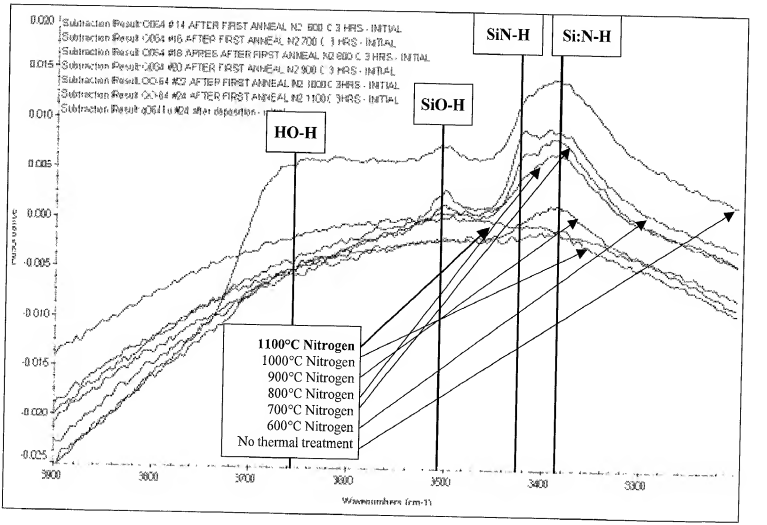
SiN-H
Si:N-H
SiO-H
HO-H
1100°C Nitrogen
1000°C Nitrogen
900°C Nitrogen
800°C Nitrogen
700°C Nitrogen
600°C Nitrogen
No thermal treatment
Wavenumbers (cm-1)

Figure 10a

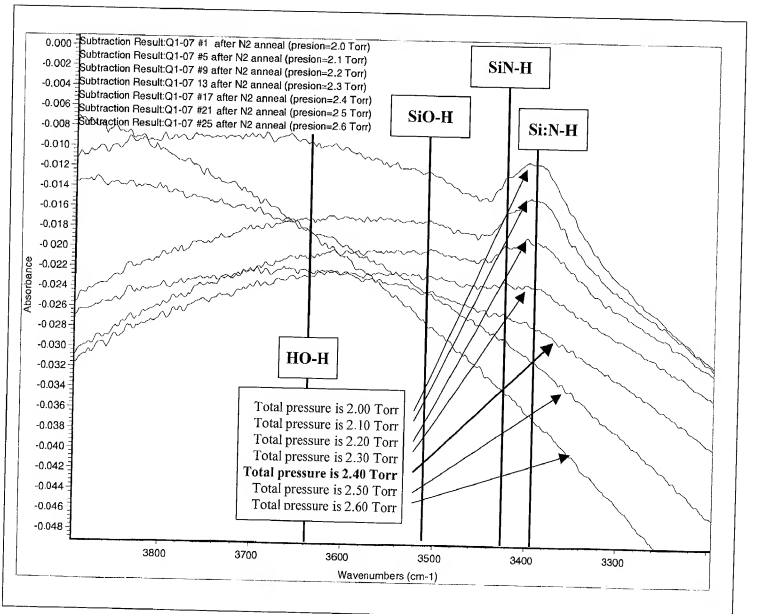
Subtraction Result:Q1-07 #1 after N2 anneal (presion=2.0 Torr)
Subtraction Result:Q1-07 #5 after N2 anneal (presion=2.1 Torr)
Subtraction Result:Q1-07 #9 after N2 anneal (presion=2.2 Torr)
Subtraction Result:Q1-07 13 after N2 anneal (presion=2.3 Torr)
Subtraction Result:Q1-07 #17 after N2 anneal (presion=2.4 Torr)
Subtraction Result:Q1-07 #21 after N2 anneal (presion=2.5 Torr)
Subtraction Result:Q1-07 #25 after N2 anneal (presion=2.6 Torr)
SiN-H
SiO-H
Si:N-H
HO-H
Total pressure is 2.00 Torr
Total pressure is 2.10 Torr
Total pressure is 2.20 Torr
Total pressure is 2.30 Torr
Total pressure is 2.40 Torr
Total pressure is 2.50 Torr
Total pressure is 2.60 Torr
Absorbance
0.000
-0.002
-0.004
-0.006
-0.008
-0.010
-0.012
-0.014
-0.016
-0.018
-0.020
-0.022
-0.024
-0.026
-0.028
-0.030
-0.032
-0.034
-0.036
-0.038
-0.040
-0.042
-0.044
-0.046
-0.048
3800
3700
3600
3500
3400
3300
Wavenumbers (cm-1)

Figure 10b

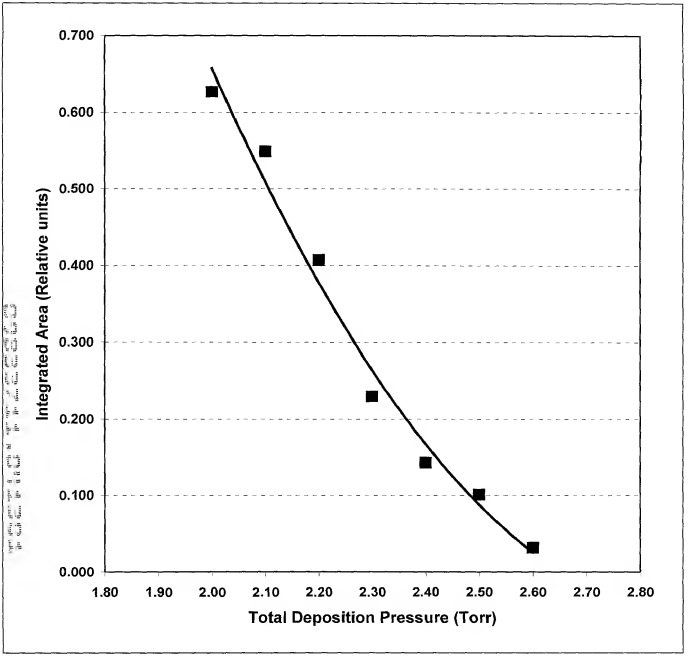
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
Integrated Area (Relative units)
1.80
1.90
2.00
2.10
2.20
2.30
2.40
2.50
2.60
2.70
2.80
Total Deposition Pressure (Torr)

Figure 11

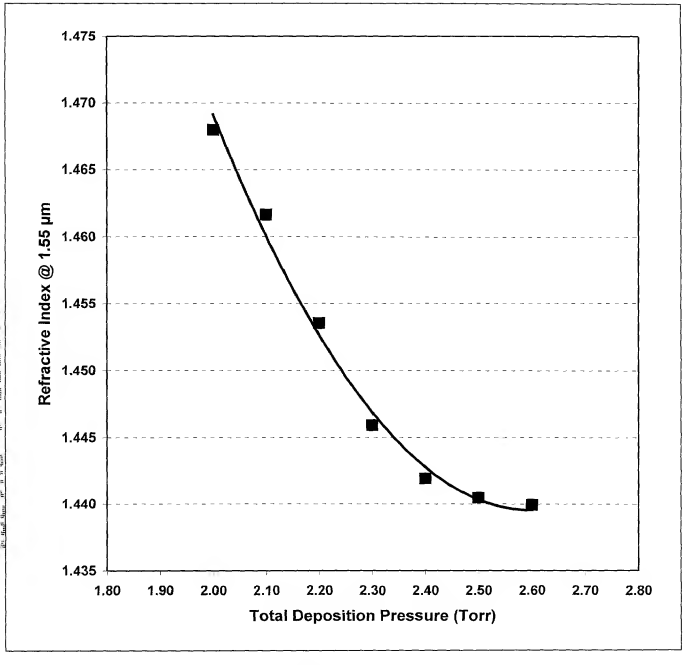
1.475
1.470
1.465
1.460
1.455
1.450
1.445
1.440
1.435
Refractive Index @ 1.55 µm
1.80
1.90
2.00
2.10
2.20
2.30
2.40
2.50
2.60
2.70
2.80
Total Deposition Pressure (Torr)

Figure 12

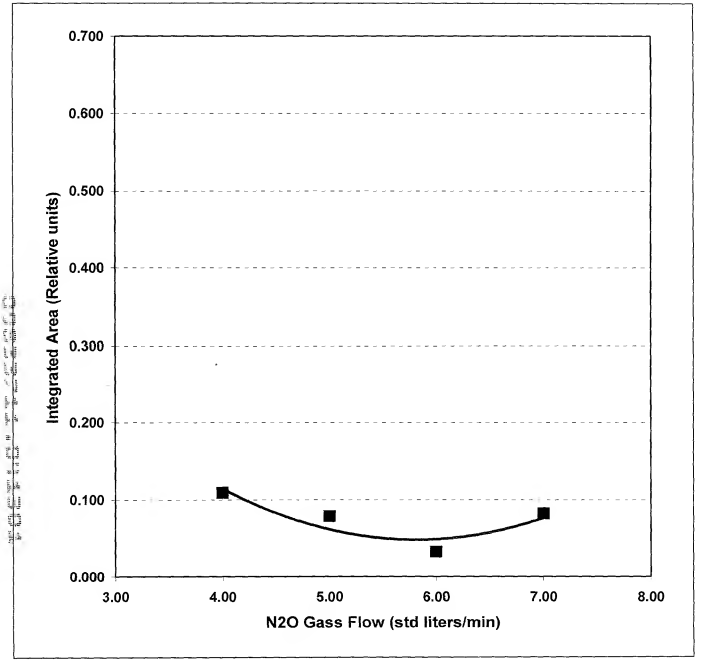
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
Integrated Area (Relative units)
3.00
4.00
5.00
6.00
7.00
8.00
N2O Gass Flow (std liters/min)

Figure 13

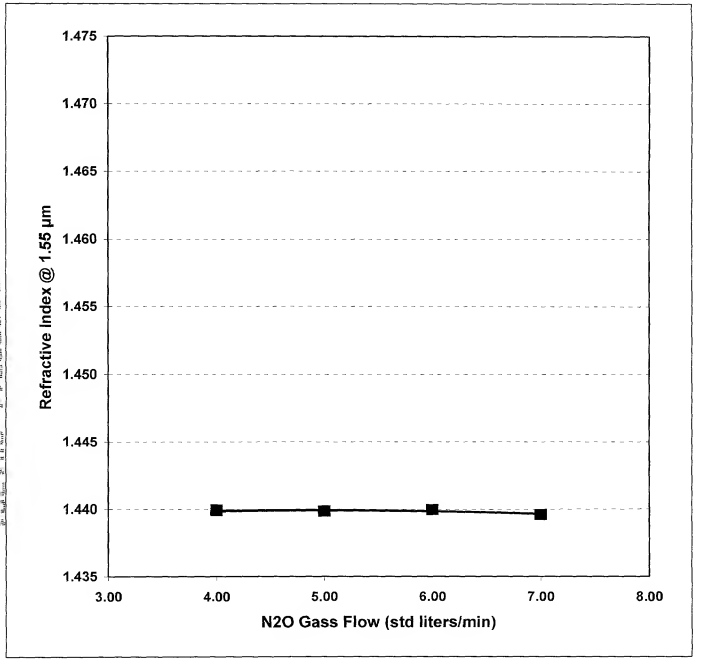
1.475
1.470
1.465
1.460
1.455
1.450
1.445
1.440
1.435
Refractive Index @ 1.55 µm
3.00
4.00
5.00
6.00
7.00
8.00
N2O Gass Flow (std liters/min)

Figure 14